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THE HARVESTING, GINNING AND CLEANING OF COTTON

By Professor J.J. VINCENT,
M.Sc., M.Sc. Tech., F.T.I.

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The Harvesting, Ginning and Cleaning of Cotton

By Professor J. J. Vincent, M.Sc.,M.Sc.Tech.,F.T.I.

SUMMARY

The most significant development in recent years in the harvesting of cotton has been the successful, but far from universal, application of mechanical methods in the United States. Two classes of machines are employed: spindle-pickers and strippers. The first are more discriminating in their action than the second but the second are more appropriate for use in certain circumstances. In favourable conditions machine picking produces substantially the same results as hand picking, so far as yield of lint per pound of seed cotton is concerned, but the machine may leave some cotton unpicked. Labour productivity may be increased 200-fold by the use of strippers and 100-fold by spindle-pickers.

The economics of mechanical harvesting is very complex, but several studies made in the United States are available as guides. The relative importance of the various factors is continually changing and the situation is further complicated by the installation of lint-cleaners at the ginneries.

In general, mechanical harvesting demands prior defoliation of the cotton plants, which is only accomplished successfully by the application of certain chemicals, such as calcium cyanamide, in carefully controlled quantities.

The advent of mechanical harvesting has greatly stimulated the elaboration of the saw-gin to enable the seed cotton to be dried and cleaned before the lint is separated from the seed and to enable the lint to be cleaned afterwards. The whole process has also been made highly automatic.

Considerable improvement has been made in recent years in the machines used by spinners for the preliminary opening and cleaning of cotton. These improvements are a consequence of the researches done at the Shirley Institute and elsewhere into the effectiveness of conventional opening machines and into the difference in aerodynamic properties between tufts of cotton of various sizes and the various types of trash. One of the new makes of opener does the work of four conventional machines and another make rejects only about half as much good lint along with the extracted waste compared with a conventional machine.

Certain types of residual waste, still present aftecarding, may be pulverised by passing the card web between a pair of precision-ground hardened cylindrical pressure rollers. The crushed waste falls away from the cotton before it is spun into yarn.

The implications of the foregoing for any particular country depend upon its general state of development, whether it is a cotton-growing or a cotton-using country or both, its supply of capital and labour and their relative costs, and the state of development of its light engineering industry. Local and continuing studies will be necessary to determine how far the developments outlined above are appropriate at any particular time. The experience of the United States should be freely drawn on, particular attention being paid to the diversity of practice in different regions of that country.

Since cotton is the most widely used industrial fibre many countries will be concerned with the developments outlined above. Appreciable research effort in each country would appear to be justified; a pooling of results would be desirable.

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